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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,607	11/24/2003	David M. Lowe	2003B126	4238

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EXAMINER

HAILEY, PATRICIA L

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,607

Applicant(s)

LOWE ET AL.

Examiner

Patricia L. Hailey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 30, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 46-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Applicants' remarks and amendments, filed on March 30, 2005, have been carefully considered. No claims have been canceled or added; claims 1-50 remain pending in this application.

Election/Restrictions

1. Claims 46-50 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected process for selectively removing alkynes or diolefins from a feedstock also containing olefins, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 14, 2004.

Withdrawn Objections and Rejections

The objection to the Specification for having informalities has been withdrawn in view of Applicants' insertion of the copending applications at paragraphs [0003] and [0010].

The provisional obviousness-type double patenting rejections of (1) claims 1, 5-13, 18-38, 44, and 45 as being unpatentable over claims 6-18, 42, and 52 of copending Application Serial No. 10/720,558 and of (2) claims 1, 10-13, and 18-25 as being unpatentable over claims 1-5 and 8 of copending Application Serial No. 10/720,617, have both been withdrawn in view of Applicants' Terminal Disclaimer filed on March 30, 2005.

Maintained Rejections

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. *Claims 1-44 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Uzio et al. (U. S. Patent No. 6,498,280).*

Uzio et al. teach a catalyst comprising at least one support, at least one element from Groups 8, 9, or 10 of the Periodic Table, at least one element from Group 14 of the Periodic Table, at least one element from Group 13 of the Periodic Table, and at least one alkali or alkaline earth metal, and, optionally, at least one halogen. See col. 4, lines 8-14 of Uzio et al.

Examples of Groups 8, 9, or 10 metals include rhodium, ruthenium, iron, and cobalt. Although platinum is preferred, the selected metal(s) from these groups is present in the catalyst in amounts ranging from 0.01% to 5% by weight with respect to the total catalyst weight. See col. 4, lines 15-21 of Uzio et al.

The Group 14 element (tin, germanium, lead) is present in an amount ranging from 0.01% to 5% by weight relative to the total catalyst weight. See col. 4, lines 20-25 of Uzio et al.

The Group 13 metal is selected from indium, gallium, and thallium, preferably indium, and is present in amounts ranging from 0.005% to 3% by weight relative to the total weight of the catalyst. See col. 4, lines 26-29 of Uzio et al.

Examples of the support include aluminas. See col. 4, lines 42-80 of Uzio et al.

Patentees' catalyst can be prepared by successive steps of depositing the metals, using any technique known in the art. These deposition steps can be performed in any order. Deposition can be performed by dry or excess impregnation, or by an ion exchange method. Calcining can be performed at temperatures of about 500°C. See col. 4, lines 52-64 of Uzio et al.

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The metals can be deposited using any known precursors that are soluble in an aqueous medium; for the alkali and Groups 13 and 14 metals, decomposable salts such as nitrates can be employed. See col. 5, lines 34-45 of Uzio et al.

Uzio et al. do not teach the specifically claimed combinations of Applicants' catalyst compositions, e.g., of a first component comprising rhodium, a second component comprising a metal other than rhodium and selected from Groups 1-15. However, because this reference teaches a catalyst comprising metal components corresponding to those respectively claimed, as well as percentage amounts of these components that are numerically within the respectively claimed percentage ranges, one of ordinary skill in the art finds amply motivation in selecting the metals disclosed in Uzio et al. to readily obtain Applicants' claimed invention.

With respect to the claim limitations regarding the metal components "predominantly contained in an outer surface layer of the support", it is considered that because Uzio et al. teach that "any technique known to the skilled person" for depositing the metal components is employable to obtain Patentees' catalysts, one of ordinary skill in the art would reasonably expect that the known techniques encompassed by Uzio et al. would result in Patentees' metal components being present on the surface layer of the support.

4. *Claims 1-45 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shepherd et al. (U. S. Patent No. 6,503,866).*

Shepherd et al. teach a catalyst comprising an alumina support (col. 3, line 7 to col. 4, line 4), and a platinum group component (e.g., ruthenium, rhodium) present in catalytically effective amounts, e.g., from about 0.01 to about 2 mass % of the final catalyst. The platinum

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group component may be incorporated into the alumina support in any suitable manner, such as coprecipitation, ion exchange, or impregnation, and may be provided by compounds such as rhodium nitrate. See col. 4, lines 8-61 of Shepherd et al.

The catalyst may also contain a Group IVA (Group 14) metal component such as germanium and tin, in amounts ranging from about 0.01 to about 5 mass %. See col. 5, lines 7/58 of Shepherd et al.

Optionally, the catalyst may contain other components or mixtures thereof which act alone or in concert as catalyst modifiers to improve activity, selectivity, or stability. Examples of these components include rhenium, gallium, indium, nickel, iron, tungsten, molybdenum, zinc, and cadmium. Catalytically effective amounts of these components may be added in any suitable manner to the carrier material during or after its preparation, or to the catalytic composite before, while, or after other components are being incorporated. Amounts of these components range from about 0.01 to about 5 mass % of the composite. See col. 5, line 59 to col. 6, line 4 of Shepherd et al. This disclosure is considered to read upon Applicants' claim limitations regarding the metal components Groups 8-10 and 1-15 of the Periodic Table, as recited in the instant claims.

Further, the platinum-group metal components may be dispersed homogeneously in the catalyst, or may be present as a surface layer component. See col. 4, line 62 to col. 5, line 6 of Shepherd et al. This disclosure, along with the aforementioned disclosure that the modifying components can be added to the composite before, while, or after other components are being incorporated, is considered to read upon the claim limitations that "the first and second components are predominantly contained in an outer surface layer".

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In the preparation of the catalyst, following the incorporation of the desired components with the alumina support, a calcination step is employed. Calcination typically takes place at a temperature of from about 370°C to about 600°C. See col. 6, lines 21-42 of Shepherd et al., as well as col. 7, lines 9-39.

Also, a reduction step is employed. Reduction conditions include a temperature of from about 315°C to about 650°C. See col. 7, lines 40-64 of Shepherd et al., especially lines 50-56.

Shepherd et al. do not teach the specifically claimed combinations of Applicants' catalyst compositions, e.g., of a first component comprising rhodium, a second component comprising a metal other than rhodium and selected from Groups 1-15. However, because this reference teaches a catalyst comprising metal components corresponding to those respectively claimed, as well as percentage amounts of these components that are numerically within the respectively claimed percentage ranges, one of ordinary skill in the art finds ample motivation in selecting the metals disclosed in Shepherd et al. to readily obtain Applicants' claimed invention.

Response to Arguments

In response to Applicants' arguments that Uzio et al. teaches "hundreds of other possible combinations of elements in a variety of ranges, some of which overlap with the current claims", and that there is "no suggestion to choose certain elements in certain ranges so as to achieve beneficial catalysts for reduction of green oil in the selective removal of alkynes and diolefins", it is the Examiner's position that only the prior art's combinations—and their respective percentage ranges--closest to Applicants' claimed invention need be selected. The desired achievement of beneficial catalysts for reduction of green oil in the selective removal of alkynes

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and diolefins is noted, and is considered an expected benefit exhibited by the prior art catalysts, in view of the similarities between Applicants' claimed catalysts and those of the prior art.

Although Uzio et al., as Applicants note, teach a dehydrogenation catalyst, and, according to Applicants, the skilled artisan "would not look to choose components and structure for a suitable hydrogenation catalyst from this dehydrogenation teaching", the catalyst of Uzio et al. is considered to continue to read upon Applicants' claimed catalyst, which is merely defined as a "catalyst composition". Such a definition implies that the catalyst can have any of a variety of intended uses, not just what usefulness Applicants allege their claimed invention to exhibit.

As for Applicants' arguments regarding the Shepherd et al. reference, the Examiner's statements regarding Uzio et al. apply here, also—only the prior art's combinations—and their respective percentage ranges—closest to Applicants' claimed invention need be selected.

Although Shepherd et al. disclose platinum as "clearly the choice of optional metal", such a disclosure does not exclude rhodium as an optional selection, as teachings of a reference are not limited to its preferred embodiments. In re Boe, 145 U.S.P.Q. 507 (CCPA 1966).

Although Applicants argue that the inventive catalysts "are shown to provide not only (i) significant reduction in oligomers ("green oil") production in a hydrogenation of small amounts of diolefins and alkynes from an olefin stream but also (ii) a lower of selection of ethane than prior art catalysts", these features are not recited in the instant claims. It is the claims that define the claimed invention, and it is claims, not specifications, that are anticipated or unpatentable.

Constant v. Advanced Micro-Devices, Inc., 7 U.S.P.Q. 2d 1064.

Applicants' claims in their present form are directed to a "catalyst composition". The cited references as discussed above are considered to read upon Applicants' claims in their present form.

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For these reasons, Applicants' arguments are not persuasive.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

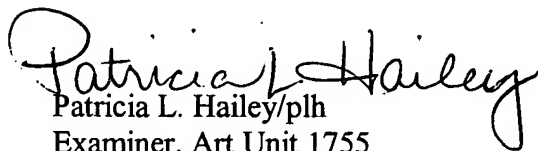
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Patricia L. Hailey/plh
Examiner, Art Unit 1755
June 6, 2005


J. A. LORENZO
SUPERVISORY PATENT EXAMINER